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THE U.S. FARMER IN THE INTERNATIONAL FOOD SITUATION

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U.S. Department of Agriculture
Economic Research Service
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Wide variations in world grain production have made countries increasingly interdependent for food supplies and have given farmers like this Iowa corn grower a larger stake in the international food situation than they have ever had before.

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THE U.S. FARMER IN THE INTERNATIONAL FOOD SITUATION

*Quentin M. West**

U.S. farmers, like their counterparts around the world, have always faced enormous uncertainties in their profession. A year of good weather and favorable prices can bring considerable profit, but a short period of drought or a sudden frost could wipe out a year's labor. Some farmers in our Midwestern States suffered through an unusually prolonged drought during the 1976 growing season.

That type of uncertainty we know all too well. But now, we face uncertainty of a relatively new stripe. It is a byproduct of the recent independence that farmers across the country have begun to enjoy. With the cessation of government stockpiling of grains and easing of Federal controls on production and prices, the security that government involvement in farming provided in the past has diminished. U.S. farmers realize they are more free now to plant as much as they want, and to profit as much as they can. They are just as free to lose money in a bad year—though the support price increases announced last fall have helped to decrease that likelihood.

U.S. farmers are aware now they have a crucial stake in the world food market. Their planning horizon now extends beyond the Atlantic, Pacific, or Caribbean. U.S. farmers are adopting a broader perspective, a world perspective, because they realize their farming decisions could affect the welfare of a Pakistani villager or a German steelworker with the same magnitude they could have on shoppers in their own towns.

With their expanded role in determining the course of the world food situation has come an increased vulnerability. The world food situation is an extremely volatile one, and U.S. farmers are not as insulated from its dangers as they used to be. Beyond local and national conditions, our farmers now must take into account a shortfall in the Soviet Union or a bumper harvest in India when they make their plans. These types of developments, as perhaps never before, can determine a farmer's profits or losses for a year.

Several events shaped this extraordinary phase in American agriculture, a phase that sees U.S. farmers at the same time most important to and most vulnerable to global uncertainties. Beginning around 1971, these occurrences have had the greatest impact on the agricultural scene:

- Wide fluctuations in world grain production, and, as a result, in world demand for grain (figures 1, 2).
- Large sporadic purchases by the USSR, which abruptly changed from a net exporter to the world's largest grain importer (figures 3, 4).

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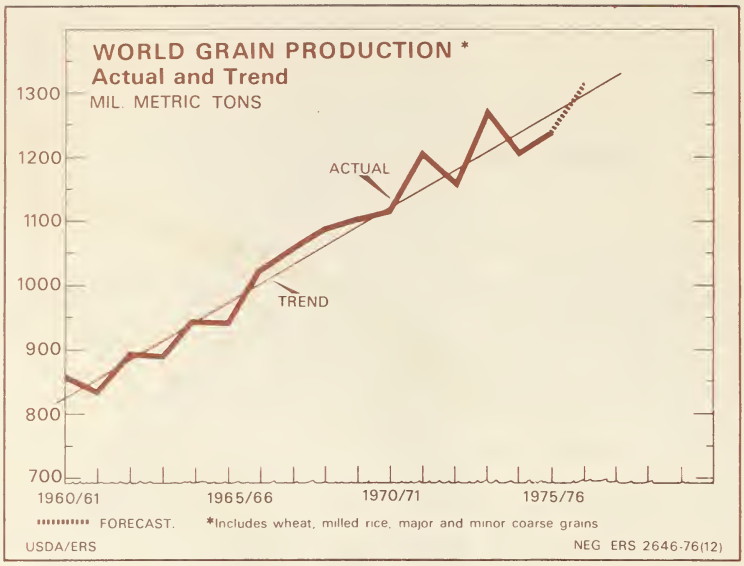

Figure 1

World grain production (above) had been rising at a fairly steady pace until the early 1970's when sharp variations in weather led to enormous fluctuations in production. Total 1976 production seems headed for a record high. The swings in production have caused the world grain trade (below) to expand rapidly and to fluctuate a great deal in the past few years.

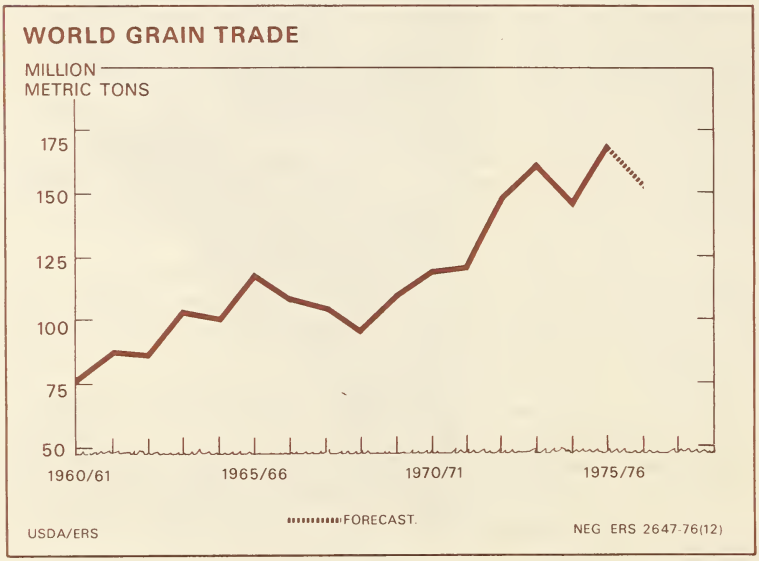

Figure 2

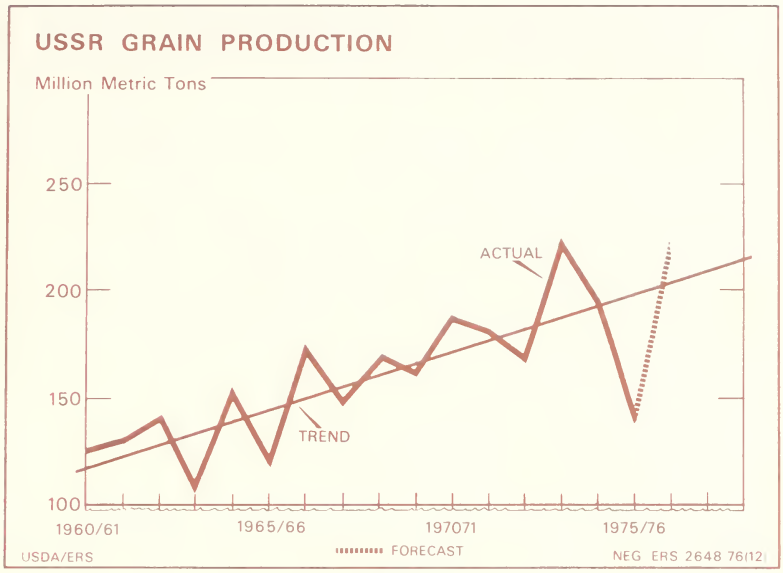

Figure 3

Soviet grain production (above) is on a long-term upward trend, but the fluctuations are quite substantial. The main reason for the variation is the Soviet farmer's extraordinary vulnerability to weather. Only 1 percent of Soviet farmland receives as much as 28 inches of rain annually, compared with 60 percent of U.S. farmland. Fluctuations in Soviet grain trade (below) are even more pronounced than the variations in production. The USSR moved from the world's sixth largest grain exporter in 1971 to a tie with Japan in 1972 as the world's leading importer.

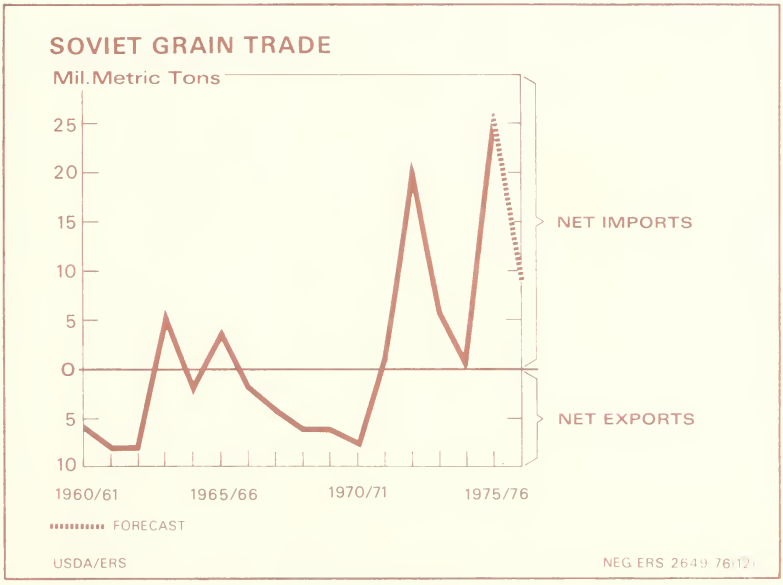

Figure 4

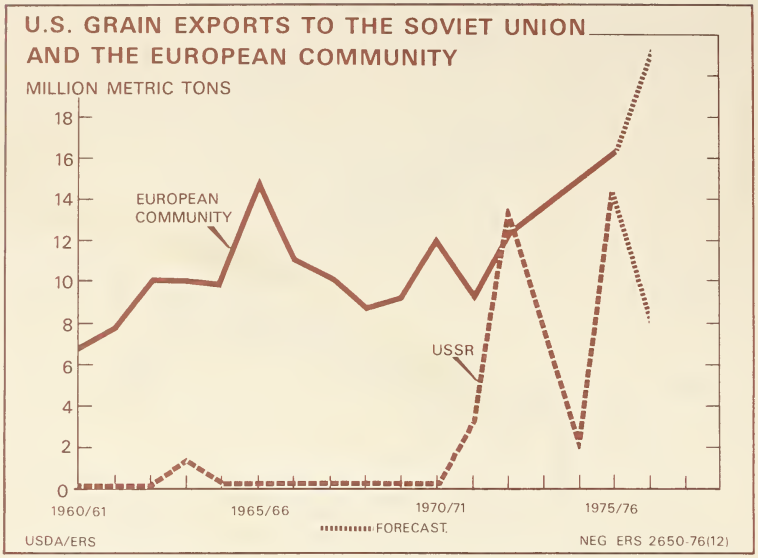

Figure 5

The Soviet Union was not the only nation to significantly increase its imports of U.S. grains in the 1970's. Above, crop setbacks from bad weather recently caused the European Community to become a U.S. customer on a scale with the USSR. Below, rising population and income made developing Asia, particularly India, a larger market, though a large harvest caused India's imports to drop substantially in 1976. Expanding petrodollar wealth spurred Mideast purchases of U.S. grains, and easing of trade restrictions further opened Eastern Europe as a U.S. market.

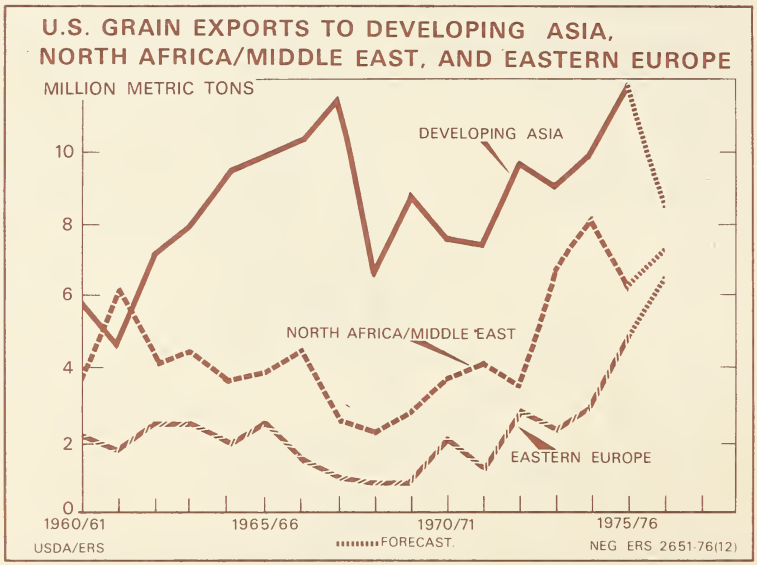

Figure 6

- Rises in demand for U.S. farm products in our traditional markets, like the European Community and India, and in other new markets like Eastern Europe and the Mideast (figures 5, 6).

Some factors did not rise out of the agricultural sphere but had an enormous destabilizing effect on it:

- The oil crisis.
- High inflation rates worldwide.
- Two devaluations of the dollar with respect to gold and the introduction of a floating exchange rate, causing international monetary realignments.
- Abortive domestic wage and price controls.
- Rising income in the developing countries, which increases their demand for food.

We are well aware of the impacts that these developments had on American agriculture. Most importantly:

- U.S. farm exports have tripled in value and risen 40 percent in volume since 1972 (figure 7).
- Crop prices shot up nearly 75 percent between 1972 and 1975, only about half of which is accounted for by inflation (figure 8). Enormous price increases for three major crops—wheat, corn, and soybeans—led the way (figures 9, 10, 11).
- Farmers more than doubled their net income between 1971 and 1973, but those gains have been dwindling. Farm prices have faded from earlier highs and costs of inputs like farm machinery, fertilizer, pesticides, and fuels have continued to climb (figure 12).
- The U.S. livestock and poultry feeding industry was thrown into disarray. The total amount of feed consumed dropped from the 1972/73 record of 142 million metric tons to 105 million in 1974/75. The cattle feeding portion of the industry was the hardest hit. The amount of grain fed to beef cattle plummeted 45 percent between 1972/73 and 1974/75, and the feed/cattle price ratio dropped to about 70 percent of what it was in 1971 (figure 13). The profitability of hog and poultry production also fluctuated widely (figures 14, 15).

The magnitude of these fluctuations in production, demand, and prices underscores three key elements of the uncertainty in the world food situation: instability of the world market for food, the lack of a world grain reserve, and the question of food aid.

As we have seen, sharp variations in production in an increasingly interdependent world make for a very unstable market for food. The demand for food is inelastic—basic per capita levels of consumption are relatively constant, regardless of price. As a result, small fluctuations in the supply of food can cause enormous fluctuations in prices. A slight decline in production in the face of strong demand means good prices for farmers. But in a year of full production worldwide, prices can plummet.

U.S. farm legislation is re-drafted every 4 years and a new version is due this year. The extent of government's role in U.S. agriculture emerges as the central

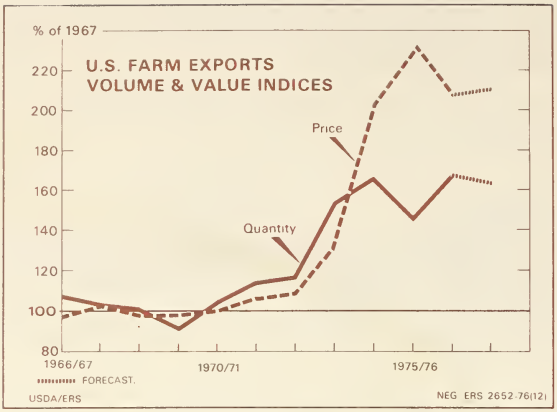

Figure 7

Higher prices accounted for much of the tripling in the value of U.S. farm exports between 1972 and 1975, but volume also jumped—by 40 percent. The government was able to sell off most of the stocks it had accumulated over the previous years, prices rose well above support levels, and farmers were freed to plant as much as they want. The easing of production restraints has enabled farmers to maintain high export levels over the past 4 years.

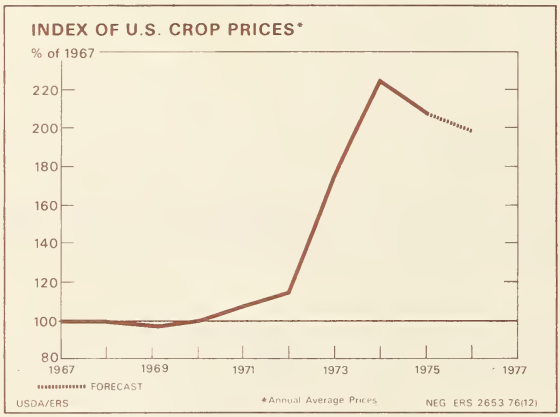

Figure 8

Only about half the increase in crop prices between 1972 and 1975 was caused by inflation. Major crop shortfalls around the world kept demand high and prices rising. A record coarse grain crop in the USSR and large harvests nearly everywhere else in the world except Western Europe caused prices to decline somewhat in 1976.

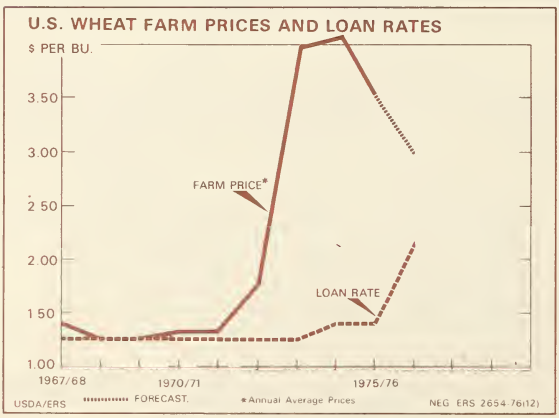

Figure 9

Wheat prices began to climb in 1972, after the Soviets entered the market in a big way, and continued strong until late last year. The loan rate increases in October 1976 put the rate for wheat very close to the market price in some areas, which stepped up loan activity. If wheat prices recover by this fall, farmers will be likely to pay off their loans, reclaim their wheat from the government, and sell it on the open market. Government stocks, then, would not increase substantially.

Like those for wheat, corn prices were steady for years before they took off in 1972. Government price support payments for corn were nearly $900 million in 1971, but have been negligible ever since. The value of the U.S. corn crop more than doubled between 1971 and 1973, while export volume soared by 50 percent. Though the loan rate for corn was raised in October 1976, market prices have remained higher.

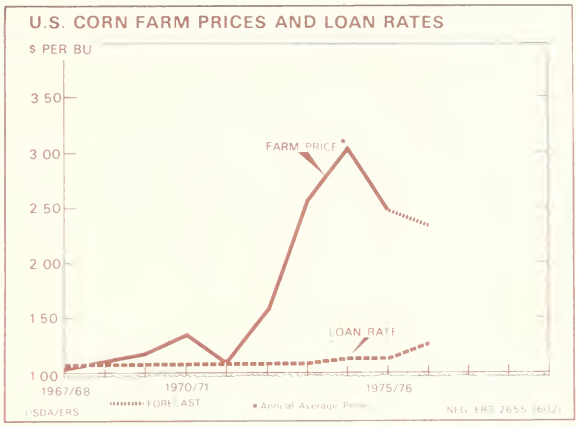

Figure 10

Of the major U.S. crops, none has fluctuated more in price over the past several years than soybeans. Soybeans sold for less than $3 a bushel in January 1972, and for $10 a bushel at their peak in June 1973. Export value of soybeans shot up 150 percent between fiscal years 1972 and 1974. It was one of the few U.S. crops that did not decline in price last year.

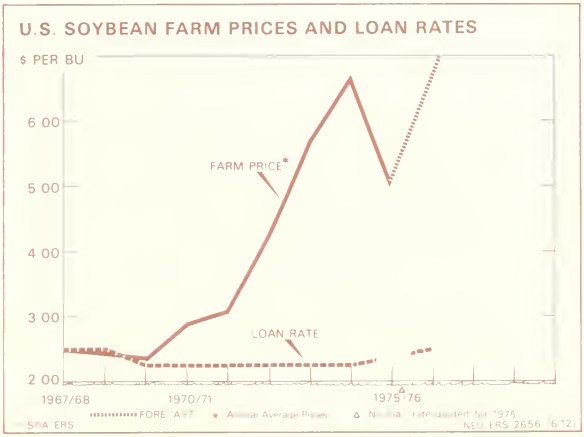

Figure 11

Gross farm income soared in 1973 and has climbed only slightly since then. Net income also peaked in 1973, but has been diminishing steadily as input costs have risen. The jump in energy bills that followed the oil embargo of 1973 accounted for much of the rise in input costs, while rising costs of farm real estate, labor, machinery, and fertilizer also contributed heavily to the decline in farm income.

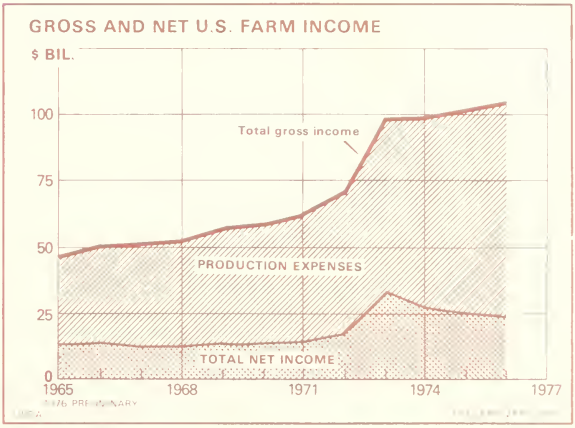

Figure 12

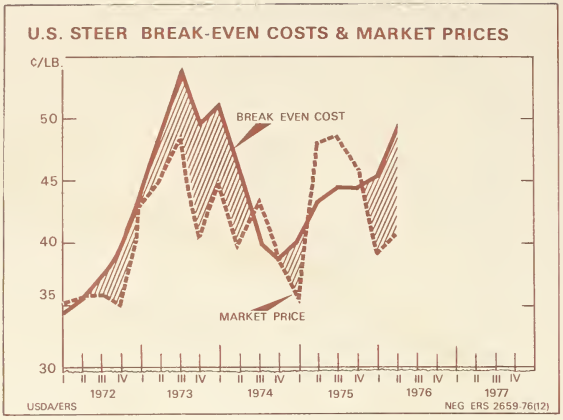

Figure 13

Livestock producers view crop prices from an entirely different perspective than grain producers. Steer producers were the hardest hit by the sudden jump in grain prices and falling steer prices in 1972, as the shaded loss areas show. Cattle numbers have been declining since 1975, so some recovery in steer prices could be expected in the near future. With crop prices easing, the outlook is improving for U.S. cattle feeders.

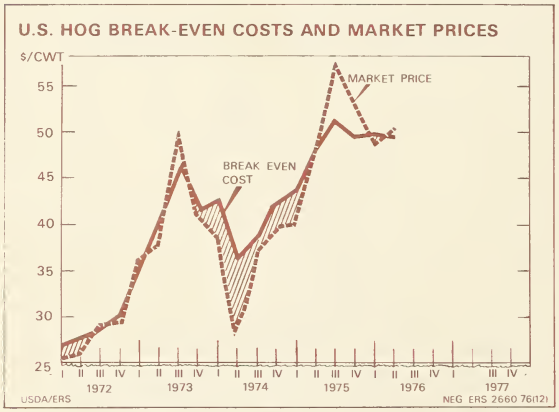

Figure 14

Of the prices paid for livestock, those for hogs have varied the most. Hog numbers have varied as greatly as prices, in response to changing costs of grains for feed. Hog producers can adjust more rapidly to market conditions than cattle raisers, who require more time for their product to mature. High hog prices caused by falling hog numbers in 1975 were reflected in the high prices consumers paid for bacon at that time.

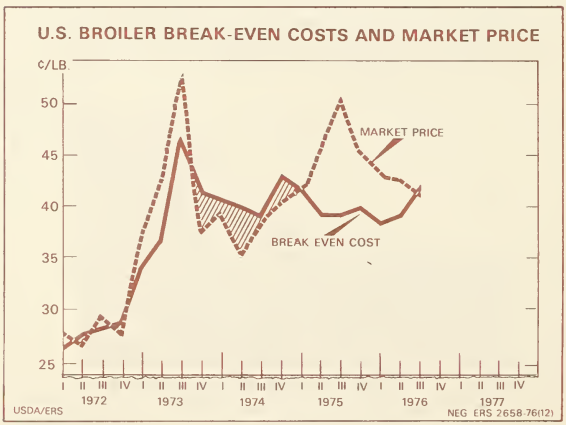

Figure 15

Since chickens can be ready to market in as little as 10 weeks, broiler producers can respond most rapidly to market conditions. Though broiler prices have fluctuated considerably in recent years, the variations have not been as great as those for steers and hogs. An apparent consumer tendency to switch to chicken in times of increased beef or pork prices also benefits broiler producers.

issue in the debate concerning this year's draft. Congress must decide how future loan rates[1] and target prices[2] for farm products will be determined, how government protection for farmers against natural disasters should be structured, and whether the government should accumulate grain reserves.

Government stocks of grains totaled over 47 million metric tons in 1972 but amounted to less than 1 million tons at the end of last year. The increase in loan rates announced this past fall may not cause government grain stocks to expand very much because market prices are generally expected to remain above loan levels. Though loan activity has increased somewhat, impact on government stocks will not be known until the loans come due in the summer or fall of 1977.

The developing countries are the leading proponents of establishing a world grain reserve. They have the most to lose in the absence of one. In times of food shortage, the developed countries have been able to pay the higher prices for food. The poorer nations have had to tighten their belts. A large world grain reserve would protect the developing countries from the high prices that would follow a bad crop year.

Though the U.S. Government supports the accumulation of an international grain reserve, it has not gone along with some proposals calling for an extremely large stockpile.

At recent meetings of the International Wheat Council, the United States proposed a world reserve of 25 million tons of wheat and 5 million tons of rice. U.S. representatives argued that this amount, roughly 2½ percent of annual world grain consumption, would be enough to avert food crises. They suggested an international system of nationally held reserves. The responsibility for holding the reserves and bearing the costs would be equitably shared by the participating nations, taking into account their financial capabilities, the degree of yearly variation in their grain production, and their levels of trade.

Difficult questions concerning the size of the reserves, whose responsibility it would be to accumulate and finance them, and where they would be stored are still unresolved. Another problem is reconciling the interests of livestock producers with those of grain growers in policies to support or control grain prices. Until such questions are answered, the lack of any substantial reserves of grain will leave the world vulnerable to the destabilizing effect of serious shortages in production.

Other difficult questions we face concern food aid. Can the developed countries be expected to continue to provide food on credit to the poorer nations at times when supplies are short and cash markets are available to the

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[1] Farmers may, at any time, use their crop as collateral for a government loan and receive money at the loan rate per bushel. Farmers may then repay the loan and sell the commodity on the open market. If the loan is not repaid within 1 year, the farmers forfeit title to the crop and keep the loan. The crop then becomes part of government stocks. At the discretion of the Secretary of Agriculture, the term of the loans may be extended by 1 year under what is known as a reseal loan.

[2] Unlike loan rates, target prices act as a direct income supplement to farmers, related to their acreage allotments, their historical yields, and the market price. The target price is established by law to serve as a trigger point for deficiency payments to a farmer if the 5-month average price for a given commodity falls below the target level. The deficiency payment makes up the difference between the market price and the target price.

suppliers? If some food is to be sold on a concessional basis, should the recipients be determined by political motivations or by severity of need? Does food aid have a long-term positive effect on a poor nation by increasing its per capita income and, thus, its potential to produce—or does addiction to food aid act as a disincentive to increasing production?

Admittedly, the United States is not sending as much food abroad on a concessional basis as it did a few years ago when the government was accumulating large amounts of reserves. We were providing 95 percent of the world's food aid. Still, the United States did account for 80 percent of all concessional sales to the developing countries in fiscal 1975, and for about 60 percent in fiscal 1976.

We are attempting to establish a system of priorities whereby the recipients of our credit sales show themselves to be deserving of it in some way—for example, by setting up programs that pass food on as wages or sell it to workers on national development projects. Roughly 70 percent of all our food aid now goes to countries the United Nations has designated as the world's poorest.

Attempting to present the outlook for agriculture over the next several years becomes particularly difficult because of these uncertainties. With the instability of the world market for grains, U.S. producers have to hope that markets will continue to open up for their production, which far exceeds U.S. demand. Over the past 5 years, more than half our production of wheat, rice, and soybeans; over a third of our cotton; and about a quarter of our corn and sorghum crops have been exported.

It is hazardous to predict prices over more than the very near future because, with the lack of grain reserves to act as a cushion, one good year for world production could send prices tumbling. Even with the disastrous drought in Western Europe this past year, the prices of wheat, rice, and feedgrains fell considerably—the result of large crops elsewhere. One exception to the downward trend was soybeans, whose price strengthened.

Should the world, on the other hand, have a very bad crop year, exports would increase and U.S. food prices could rise with them. Another question that would arise in a bad crop year is whether food aid would surface to avert widespread starvation.

The future for farmers in the United States must appear to be an uncertain, if not dangerous, one, even though they are operating now with greater freedom and, in some cases, at higher income levels. But there are some recent developments in world agriculture that may give both farmers and consumers some reason for optimism.

A major step toward reducing the instability in the world food market was taken with the 5-year U.S.-Soviet grain agreement signed in October 1975. The inconsistency of Soviet purchases has, in the past, been one of the most destabilizing factors in the world grain market.

Despite their strong recovery in grain production in 1976, the Soviets are expected to purchase 7 to 8 million tons of grain from us in fiscal 1977. That's just a little more than half the amount they bought from the United States this past year and slightly above the minimum purchase specified in the agreement.

Important long-term agreements have also been signed with Poland and with Japan, a larger and more consistent customer than the USSR.

Though the Federal Government has withdrawn considerably from any control of the agricultural marketplace, it should not ignore the needs of farmers who must assess international demand for their crops before making their planting decisions. USDA is attempting to develop new information systems to make global crop reporting more timely and more accurate. One example is the LACIE[3] project, based in Houston, that is developing a method for crop estimation via satellite.

There are grain crops being planted somewhere in the world every month of the year, and the size and success of those plantings are signals that a successful farmer in the United States will have to read.

In the marketing end of the business, USDA is working on improved analysis of foreign demand—work that may help U.S. farmers to decide how much of their crops they could expect to sell abroad, and how much it will cost to feed their livestock. Private enterprise has already impressed many observers in government with its restraint since it received its new freedom. The amount of grain that is being held privately to respond to market conditions is higher than many government officials expected.

* * * *

Farmers across this Nation have seen terrific change over the past several years both in their fortunes and in the role they play in the international food situation. U.S. agriculture has moved from limited production to full production, from reliance on price supports to a market price orientation, from large government stocks to virtually none, and toward a free market for farm goods—with no more embargoes.

With this new independence for the U.S. farmer has come a new interdependence. Never before has the fate of a farmer in the steppes of Russia been tied so closely to the fortune of a farmer in the Great Plains of the United States.

For the short term, at least, this interdependence with the course of agriculture and food supplies elsewhere in the world spells uncertainty for farmers here.

The government has withdrawn its controls over the agricultural marketplace, and farmers have generally applauded that change. But tradeoffs are involved. One is the uncertainty that that withdrawal implies. Tradeoffs like this one—between freedom and uncertainty for farmers in the marketplace—will be weighed in this year's debate on new farm legislation, as the course of future government programs for agriculture is decided.

[3] LACIE: Large area crop inventory experiment.

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